



Air Quality Permitting Technical Memorandum

Tier II Operating Permit and Permit to Construct No. 067-00017

J. R. SIMPLOT, HEYBURN

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Project No.T2-000420

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Permit Status:

FINAL

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LIST OF ACRONYMS

AFS	AIRS Facility Subsystem
AIRS	Aerometric Information Retrieval System
AMU	Air Makeup Unit
AQCR	Air Quality Control Region
CFR	Code of Federal Regulations
CH ₄	methane gas
CO ₂	carbon dioxide
DEQ	Department of Environmental Quality
dscf	dry standard cubic feet
gr	grain (1 lb = 7,000 grains)
HAPs	hazardous air pollutants
H ₂ S	Hydrogen Sulfide
ISCST	Industrial Source Complex Source Terrain
IDAPA	A number designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
JRS	J. R. Simplot
km	kilometer
lb/hr	pound per hour
MACT	Maximum Available Control Technology
MMBtu	million British thermal units
NAAQS	National Ambient Air Quality Standards
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO _x	nitrogen oxides
NSPS	New Source Performance Standards
O&M	Operations & Maintenance
PAHs	Polyaromatic Hydrocarbons
PM ₁₀	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
ppm	parts per million
PTC	permit to construct
SIP	State Implementation Plan
SO ₂	sulfur dioxide
TAP	Toxic Air Pollutant
T/yr	tons per year
UTM	Universal Transverse Mercator
VOC	volatile organic compound
WESP	Wet Electrostatic Precipitator

PURPOSE

The purpose for this memorandum is to satisfy the requirements of IDAPA 58.01.01 Sections 400 et seq. and 200 et seq., *Rules for the Control of Air Pollution in Idaho (Rules)*.

PROJECT DESCRIPTION

This project is for the issuance of a Tier II Operating Permit and Permit to Construct for the J. R. Simplot (JRS) facility located in Heyburn, Idaho. The emissions sources of the facility are:

Table 1.1 EMISSIONS SOURCES

Source Description	Control Device
<u>FACILITY-WIDE CONDITIONS</u>	
<u>DRYERS</u> Line 1 dryer, line 2 dryer, and line 4 dryer.	None
<u>WESP STACK</u> Line 1 fryer, line 2 fryer, line 3 fryer, and line 4 fryer.	PM ₁₀ emissions are controlled by a Wet Electrostatic Precipitator.
<u>SPRINGFIELD BOILER</u> Natural gas-fired boiler; manufactured by Springfield; Model S/N-481; rated capacity 37.8 MMBtu/hr.	PM ₁₀ emissions are uncontrolled
<u>CLEAVER-BROOKS BOILER</u> Natural gas-fired boiler; manufactured by Cleaver-Brooks; Model DL76-WL1172; rated capacity 76.7 MMBtu/hr.	PM ₁₀ emissions are uncontrolled
<u>NEBRASKA BOILER</u> Natural gas-fired boiler; manufactured by Nebraska; Model NOS-2A-58 (Low NO _x burner technology; rated capacity 80 MMBtu/hr.	PM ₁₀ emissions are uncontrolled. The boiler is equipped with low NO _x burners
<u>ETHANOL PRODUCTION PLANT AND STORAGE TANKS</u> The ethanol production plant uses fruit, grain, sugar, and vegetable waste, including potato waste from the Heyburn facility and other facilities to produce 200 proof ethanol. The ethanol is produced and stored in tanks at the facility.	None
<u>MATERIAL HANDLING SYSTEM</u> The ethanol plant receives shelled corn, whole wheat, milo, granulated sugar, and other grains from delivery trucks. The raw material is moved several times via screw conveyors and recovery elevators into storage bins, surge bins, and weigh belts. Material is then dropped into hammer mill to be ground into the correct size for use in the ethanol plant.	PM ₁₀ emissions from the receiving area, the material handling operations, and the hammermill are controlled by a Baghouse.
<u>ADI-BVF DIGESTER FLARES</u> The ADI-BVF anaerobic digester, where water from the processed potatoes is retained and acted upon by bacteria, is located at the JRS wastewater treatment facility. Biogas byproducts (CH ₄ , CO ₂ , & H ₂ S) that are collected from under the cover of the digester are burned by flares.	PM/PM ₁₀ emissions are uncontrolled. H ₂ S will be controlled by a scrubbing system located between the ADI-BVF anaerobic digester and the biogas flares. The treated biogas will be mixed with untreated biogas before it is sent to the flares.

FACILITY DESCRIPTION

Potato Processing Plant

Raw potatoes are delivered to the facility by truck and unloaded into the storage and receiving buildings. The potato trucks are unloaded in enclosed storage buildings. Inside the storage buildings, potatoes are pushed from the storage piles into a water flume system that is used to wash and transport the potatoes. They are then mechanically sorted by size and inspected.

After sorting and inspection, the potatoes are transported by flume to one of four production lines (designated Lines 1, 2, 3, and 4). Lines 1, 2, and 4 are equipped with a hot water vat (blancher), a dryer, and a fryer. These lines are used primarily to process french fries. Line 3 is equipped with a blancher and a fryer; it is used primarily to process the pre-formed products. There is no dryer associated with Line 3.

The potatoes are peeled by steam peelers at the front of the production lines. They are then transported by flume to cutting decks where they are cut into various shapes and lengths. After the potatoes are cut, they are dipped into the blanchers to remove excess sugars. On Lines 1, 2, and 4, the potato products are then conveyed to dryers to remove surface moisture. Each dryer is typically one large unit that is divided into two or three zones using internal baffles; each zone is heated with natural gas-fired burners.

Once the surface moisture is removed, either the potatoes are placed directly in fryers or (depending on the product) dipped in batter prior to being placed in fryers. Hot cooking oil is used to partially cook the products before they are frozen. Steam coils are used to heat the oil in the fryers. A typical fryer system includes the fryer, an oil miser, and an oil filter. After the potato products are fried, the final product is frozen and packed for shipping.

Boilers

The steam-generating plant consists of a Springfield boiler, a Cleaver-Brooks boiler, and a Nebraska boiler that provide steam, primarily to the peelers, blanchers, fryers, and ethanol plant.

Air Makeup Units

A number of natural gas-fired AMUs are used to heat the buildings in cold weather. These heaters vent into the warehouse and have no direct exterior emission points.

Ethanol Production Plant and Ethanol Storage Tanks

The ethanol plant is a continuous cook, batch fermentation, and dehydration system. The ethanol plant uses fruit, vegetable, and grain waste, including potato waste from the Heyburn facility and other facilities.

The ethanol plant receives shelled corn, whole wheat, milo, granulated sugar, and other grains from delivery trucks. The raw materials are moved several times via screw conveyors and recovery elevators into storage bins, surge bins, and weigh belts. Following the weigh belts, the material is dropped into the hammer mill to be ground into the correct size for use in the ethanol plant. A baghouse controls particulate emissions from the receiving area, the material handling operations, and the hammer mill.

Wet potato waste is pumped from the potato plant to vertical hammer mills that grind the waste into slurry. The slurry is mixed with enzymes that break down the waste, then pumped into a pressure cooker. Steam is added to the pressure cooker. After the slurry is cooked, additional enzymes are added before it is pumped into a holding tank. The slurry is then cooled to fermentation temperature (approx. 100 °F) and pumped to one of six fermenters. Yeast, enzymes, and other chemicals are added to further promote fermentation. The slurry (now called mash) is fermented for two days. After the fermentation process is complete, the fermented mash (called beer) is transferred to a holding tank (called a beer well). From the beer well, the beer is pumped to an atmospheric distillation tower where the alcohol is separated from the water and solids. The alcohol is distilled to approximately 95% purity. The water and solids are pumped to a centrifuge, which separates the solids from the liquids. The solids are sold to make cattle feed, and the liquids go to the waste treatment plant.

The alcohol is pumped from the distillation column to a molecular sieve dehydrator to remove the remaining water. The result is 200 proof alcohol, which flows from the dehydrator to shift tanks. Once per shift, the alcohol is mixed with unleaded gasoline and pumped to underground storage tanks.

Wastewater Treatment Facility

An anaerobic digester is located at the wastewater treatment facility. In the digester, starch-laden water is retained and acted upon by bacteria. The digestion process produces gaseous byproducts (CH₄, CO₂, and H₂S), that are collected from under the digester cover. Initially, the gas was burned by a flare system, but an H₂S scrubbing system was installed in 2001.

The emissions units, the associated air pollution control equipment, and the stack parameters are described in either the operating permit or the updated Tier II operating permit application dated March 15, 2002.

SUMMARY OF EVENTS

August 17, 1995	DEQ received the Tier I operating permit application for the JRS facility in Heyburn.
October 16, 1995	DEQ determined the Tier I operating permit application administratively complete.
May 28, 1998	DEQ issued PTC No. 067-00017 to JRS.
November 12, 1998	DEQ issued a Consent Order to JRS.
February 1, 1999	JRS submitted a revised Tier I operating permit application.
February 3, 1999	DEQ issued PTC No. 067-00017 to JRS.
April 2, 1999	DEQ determined the revised Tier I operating permit application administratively complete.
October 7, 1999	DEQ issued a Consent Order to JRS.
November 15, 1999	DEQ issued PTC No. 067-00017 to JRS.
February 12, 2000	JRS submitted request to delay the Tier I operating permit until the Tier II operating permit has been issued.
April 3, 2000	DEQ issued PTC No. 067-00017 to JRS.
June 30, 2000	DEQ issued PTC No. 067-00017 to JRS.
September 27, 2000	DEQ issued a Consent Order to JRS.
February 12, 2001	JRS submitted a Tier II operating permit application to DEQ.
October 17, 2001	DEQ determined the Tier II operating permit application complete.
December 17, 2001	JRS submitted a Facility-wide air modeling for regulated pollutant emissions for the sources existing at the facility.
March 15, 2002	JRS submitted an updated Tier II operating permit application to DEQ.
March 22, 2002	DEQ requested that JRS supplement their updated Tier II operating permit application with additional information.
April 8, 2002	DEQ determined the updated Tier II operating permit application complete.
June 4, 2002	DEQ sent to JRS a facility draft Tier II operating permit for 10-day review.
June 18, 2002	DEQ staff met with JRS staff and discussed the JRS's comments regarding the facility draft Tier II operating permit.
August 1, 2002	A public comment period started and ended on August 30, 2002. Comments and DEQ's responses are included in Appendix B of this memo.
August 27, 2002	A public hearing for the Tier I operating permit was held in Rupert, Idaho.

DISCUSSION

1. Emission Estimates and Related Permit Requirements

Emission estimates were provided by JRS in the Tier II operating permit application that was submitted to DEQ on March 15, 2002. Appendix C (pages C-1 through C-12) of the Tier II operating permit application contains tables that provide detailed emissions rates for the criteria air pollutant, and TAP emissions from the entire facility. Emissions calculations submitted within the application were checked for accuracy. These emissions calculations provided the basis for the emissions limits that are incorporated in the operating permit and for the NAAQS analyses.

The permit will have the following requirements:

Facility-wide Conditions

Facility-wide conditions and methods for determining compliance are included in Section 2 of the permit. Permit Section 2 is self-explanatory and no additional detail is necessary in this technical analysis.

Emissions from Dryers

Potato dryers will have PM₁₀ emission limits. The operating permit will require performance tests to determine compliance with the PM₁₀ emissions rates. A performance test hierarchy is specified in the permit to determine the frequency of testing.

In previous JRS PTCs, General Provision I (a requirement that pertains to the performance test, listed as General Provision 9 in the current permit) was deemed applicable. This provision stated:

"The maximum allowable source operating rate shall be limited to 120% of the average operating rate attained during the most recent performance test conducted pursuant to this permit, for which a test protocol has been granted prior approval by the Department, which demonstrated compliance with the respective pollutant emission limit unless; (1) a more restrictive operating limit is specified elsewhere in this permit or; (2) at such an operating rate, emissions would exceed any emission limit(s) set forth in this permit."

The facility contends this requirement is DEQ policy and is not included in the *Rules*; therefore, it does not apply. Additionally, JRS claims that the maximum production rates for the dryers and fryers are unachievable during the PM₁₀ performance tests because the various potato products they produce emit pollutants at different rates.

Therefore, due to the uncertainties in determining a representative production rate during a performance test, DEQ has removed the requirement as stated above and replaced it with fixed throughput rates and performance test requirements in the permit. The permit now requires that the source tests be conducted while the dryers are operating at worst case normal operating conditions (as documented by the permittee) or while they are operating at a minimum of 80% of their maximum throughput limit (measured as finished potato product).

The permit limits each dryer to a certain finished potato product throughput and requires tracking to verify that the PM₁₀ emissions limits are not exceeded.

Emissions from the WESP Stack

All four fryers will exhaust through the WESP stack with a combined PM₁₀ emissions limits of 10.5 lb/hr. The JRS Heyburn facility will determine compliance with the PM₁₀ emissions limits by conducting performance tests on emissions from the WESP stack. A PM₁₀ performance test

hierarchy, similar to that for the dryers, will be used to determine the test frequency. And a fryer's throughput monitoring requirements, similar to those of the dryers, will be used for the WESP performance tests. During the performance tests, JRS will collect and record data on the finished potato product throughput, as well as the WESP operating parameters. The WESP parameters that are directly related to PM₁₀ emissions will be recorded once per hour. These parameters are:

- the secondary voltage at each Transform-Rectification (T-R) set for each field of the WESP.
- the temperature differential between the inlet and the outlet of the quench chamber of the WESP.

When performance tests are not performed, JRS will demonstrate compliance with PM₁₀ emissions limits by monitoring on daily basis the aforementioned operating parameters and monitoring the daily and annual production rates of the finished potato product from all the fryers.

The JRS Heyburn facility is required to prepare a WESP O&M manual. The manual must contain the parameters under which the WESP must operate, including:

- the secondary voltage at each T-R set for each field of the WESP.
- the temperature differential between the inlet and the outlet. These parameters must be supported by the WESP manufacturer documentation.

The Tier II operating permit mandates the permittee to install equipment to monitor and record the secondary voltage and temperature differential for the WESP.

Fuel Burning Equipment (Springfield, Cleaver-Brooks, and Nebraska Boilers)

Particulate matter emissions from each boiler will not exceed 0.015 gr/dscf of effluent gas adjusted to 3% oxygen by volume when natural gas is combusted, as required in IDAPA 58.01.01.675. As long as each boiler is fueled exclusively on natural gas, the likelihood of exceeding the grain-loading standard is considered insignificant. Therefore, the only method that will be used to determine compliance with IDAPA 58.01.01.675 is to require that each boiler be fueled only with natural gas.

Compliance with PM₁₀ emissions limits will be determined by requiring that the boilers be fired on natural gas exclusively.

The Springfield and Cleaver-Brooks boilers are not subject to NSPS, Subpart Dc because they were constructed prior to the effective date of these regulations.

The Nebraska boiler, equipped with low-NO_x burner technology, is subject to NSPS, Subpart Dc, which requires that JRS record the quantity of gas combusted each day

No emission limits for CO, VOC, SO₂, and NO_x are set in the operating permit because they are inherently limited at the maximum operation for each boiler.

Material Handling System

No PM₁₀ emission limits are included in this Tier II operating permit for this process. The PM₁₀ emissions were obtained from the manufacturer, Bratney Companies. The PM₁₀ emissions are based on the maximum capacity of the handling system and are guaranteed by the manufacturer. Also, the PM₁₀ emissions were modeled and the modeling results showed no NAAQS violations.

The operating permit requires that an O&M manual is available to ensure the baghouse is operated according to the manufacturer's recommendations. JRS will monitor and record daily the baghouse pressure drop.

ADI-BVF Digester Flares

The ADI-BVF Digester Flares will have SO₂ emissions limits. To determine compliance with the permitted SO₂ emissions limits (40 T/yr) at the flares, H₂S is combusted to SO₂. A performance test is required to measure the H₂S concentration.

The JRS Heyburn facility will use the biogas flow rate and the H₂S concentrations to calculate the annual SO₂ emissions from the biogas flares.

To ensure the H₂S will combust, the ADI-BVF has a pilot flame. The facility will install a thermocouple or similar device to detect the flame in the biogas flares. This device will be designed to fire a pilot flame whenever a flame is undetected. In the event of a flame failure, JRS will follow a standard operating procedure to reinitiate the pilot flame as expeditiously as practicable.

A hydrogen sulfide performance test is included in this permit because JRS did not fulfill this requirement as mandated by the Consent Order of September 27, 2000.

The operating permit requires an O&M manual to ensure the iron sponge scrubber system is operating in accordance with the manufacturer's specifications.

Ethanol Production Plant and Storage Tanks

A review of 40 CFR 60, Subpart Kb, *Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for which Construction, Reconstruction, or Modification commenced after July 23*, indicates that none of the storage tanks at this facility are subject to this subpart.

The JRS PTC No. 067-00017 issued in 1999 and 2000, contains a VOC emission rate for the ethanol plant, the storage tanks, and the fryers. The VOC's PTE from the entire facility is equal to 73.4 T/yr, which is well below the PSD threshold of 250 T/yr. In addition, modeling for VOC impacts was not performed because ambient air quality standards for VOC do not exist and ambient ozone concentrations are not a concern in southeastern Idaho. Therefore, VOC emission rates in PTC No. 067-00017 are excluded from this Tier II operating permit.

2. Modeling

A modeling demonstration to determine compliance with NAAQS was submitted by JRS in the Tier II operating permit application. Modeling of all emissions units at the facility is necessary to demonstrate that the stationary source from the entire JRS facility would not cause or significantly contribute to a violation of any ambient air quality standard, as per IDAPA 58.01.01.403. All emissions units that are incorporated in this permit are included in the ambient air assessment.

The JRS Heyburn facility used the ISCST 3 (Version 00101) model, an approved regulatory model, to assess the ambient air quality and some TAP increments.

Dispersion modeling results indicate that PM₁₀, NO_x, CO, and SO₂ emissions from JRS Heyburn facility operations will meet all applicable NAAQS and TAP increments.

The TAPs that are included in the modeling assessment are provided in the modeling memo of Appendix A of this memo. Certain carcinogenic pollutants were identified as requiring a refined modeling analysis because the potential emissions did not meet the screening emissions level values as listed in IDAPA 58.01.01.586. These pollutants are formaldehyde, arsenic, cadmium, chromium VI, nickel, and PAHs. Table 5 in the operating permit application provides a modeling summary for the above carcinogenic pollutants. This modeling summary table shows that all TAP emissions from the modeled sources demonstrates compliance with the acceptable ambient concentration requirements.

The modeling memo is included in Appendix A of this document.

3. Area Classification

The JRS Heyburn facility, Minidoka and Cassia Counties, Idaho, is located in AQCR 63 and UTM Zone 12. The area is designated as an attainment or unclassifiable area for all regulated criteria air pollutants. There are no Class I areas located within 10 kilometers of the facility.

4. Facility Classification

The facility is a major facility as defined by IDAPA 58.01.01.008.10. The facility is not a designated facility as defined in IDAPA 58.01.01.006.27. The facility is not subject to NESHAP in accordance with 40 CFR 61 or 40 CFR 63. The Nebraska boiler at the facility is subject to federal NSPS in accordance with 40 CFR 60, Subpart Dc.

5. Regulatory Review

This operating permit is subject to the following permitting requirements:

- | | | |
|----|---------------------------------|---------------------------------------------------------------------------------------------------|
| a. | <u>IDAPA 58.01.01.123</u> | Certification of Documents |
| b. | <u>IDAPA 58.01.01.130</u> | Excess Emissions |
| c. | <u>IDAPA 58.01.01.401</u> | Tier II Operating Permit |
| d. | <u>IDAPA 58.01.01.403</u> | Permit Requirements for Tier II Sources |
| e. | <u>IDAPA 58.01.01.404.01(c)</u> | Opportunity for Public Comment |
| f. | <u>IDAPA 58.01.01.404.04</u> | Authority to Revise or Renew Operating Permits |
| g. | <u>IDAPA 58.01.01.405</u> | Conditions for Tier II Operating Permits |
| h. | <u>IDAPA 58.01.01.406</u> | Obligation to Comply |
| i. | <u>IDAPA 58.01.01.470</u> | Permit Application Fees for Tier II Permits |
| j. | <u>IDAPA 58.01.01.600</u> | Open Burning |
| k. | <u>IDAPA 58.01.01.625</u> | Visible Emission Limitation |
| l. | <u>IDAPA 58.01.01.650</u> | General Rules for the Control of Fugitive Dust |
| m. | <u>IDAPA 58.01.01.675</u> | Fuel Burning Equipment – Particulate Matter |
| n. | <u>IDAPA 58.01.01.677</u> | Particulate Matter Standards for Fuel Burning Equipment for
Minor and Existing Sources |
| o. | <u>IDAPA 58.01.01.775</u> | Odors |
| p. | <u>40 CFR 60, Subpart Dc</u> | Standards of Performance for Small Industrial-Commercial-
Institutional Steam Generating Units |
| q. | <u>IDAPA 58.01.01.200</u> | Permits to Construct |

6. AIRS

AIRS/AFS^a FACILITY-WIDE CLASSIFICATION^b DATA ENTRY FORM

AIR PROGRAM	SIP ^c	PSD ^d	NSPS ^e (Part 68)	NESHAP ^f (Part 63)	MACT ^g (Part 63)	TITLE ^h	AREA CLASSIFICATION
POLLUTANT							A = Attainment U = Unclassifiable N = Nonattainment
SO ₂ ^h	A						U
NO _x ⁱ	A						U
CO ^j	A						U
PM ₁₀ ^k	A						U
PT (Particulate) ^l	A						U
VOC ^m	B						U
THAP (Total HAPs) ⁿ	NA						NA
			APPLICABLE SUBPART				
			Dc				

^a Aerometric Information Retrieval System (AIRS) Facility Subsystem (AFS)

^b AIRS/AFS Classification Codes:

A = Actual or potential emissions of a pollutant are above the applicable major source threshold. For NESHAP only, class "A" is applied to each pollutant which is below the 10 ton-per-year (T/yr) threshold, but which contributes to a plant total in excess of 25 T/yr of all NESHAP pollutants.

SM = Potential emissions fall below applicable major source thresholds if and only if the source complies with federally enforceable regulations or limitations.

B = Actual and potential emissions below all applicable major source thresholds.

C = Class is unknown.

ND = Major source thresholds are not defined (e.g., radionuclides).

^c State Implementation Plan

^d Prevention of Significant Deterioration

^e New Source Performance Standards

^f National Emission Standards for Hazardous Air Pollutants

^g Maximum Achievable Control Technology

^h Sulfur Dioxide

ⁱ Nitrogen Oxides

^j Carbon Monoxide

^k Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers

^l Particulate Matter

^m Volatile Organic Compounds

ⁿ Hazardous Air Pollutants

FEES

Fees apply to this facility in accordance with IDAPA 58.01.01.470. The facility is subject to permit application fees for this Tier II operating permit of \$500.

RECOMMENDATIONS

Based on the review of the application materials, and all applicable state and federal regulations, staff recommends that DEQ issue a Tier II operating permit and Permit to Construct to the JRS Heyburn facility. An opportunity for public comment on the air quality aspects of the proposed Tier II operating permit was provided in accordance with IDAPA 58.01.01.404.01.c.

HE/sm

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cc: Sherry Davis, Technical Services
Joan Lechtenberg, Air Quality Division
Bill Alired, Twin Falls Regional Office
Laurie Kral, EPA Region 10

APPENDIX A

J. R. Simplot, Heyburn

Modeling

Table 2. Heyburn Facility-Wide Toxic Air Pollutant Short-Term Emission Rates and Screening Emission Limits

Toxic Air Pollutant	Facility-Wide Emission Rate (lb/hr)	Screening Emission Limit (lb/hr)	Model?
3-Methylchloranthrene	4.31E-07	2.50E-06	No
Benzene	5.03E-04	8.00E-04	No
Benzo(a)pyrene	2.87E-07	2.00E-06	No
Dichlorobenzene	2.87E-04	30	No
<i>Formaldehyde</i>	<i>1.80E-02</i>	<i>5.10E-04</i>	<i>Yes</i>
Hexane	4.31E-01	12	No
Naphthalene	1.46E-04	3.33	No
Pentane	6.23E-01	118	No
Toluene	8.14E-04	25	No
<i>Arsenic</i>	<i>4.79E-05</i>	<i>1.50E-06</i>	<i>Yes</i>
Barium	1.05E-03	0.033	No
Beryllium	2.87E-06	2.80E-05	No
<i>Cadmium</i>	<i>2.64E-04</i>	<i>3.70E-06</i>	<i>Yes</i>
Total Chromium	3.35E-04	3.30E-02	No
Chromium III ^a	2.75E-04	3.30E-02	No
<i>Chromium VI^a</i>	<i>6.04E-05</i>	<i>5.60E-07</i>	<i>Yes</i>
Cobalt	2.01E-05	0.0033	No
Copper	2.04E-04	0.013	No
Manganese	9.10E-05	0.067	No
Mercury	6.23E-05	0.001	No
Molybdenum	2.64E-04	0.333	No
<i>Nickel</i>	<i>5.03E-04</i>	<i>2.70E-05</i>	<i>Yes</i>
Selenium	5.75E-06	0.013	No
Zinc	6.95E-03	0.667	No
Nitrous oxide	5.27E-01	6	No
<i>PAHs</i>	<i>2.73E-06</i>	<i>2.00E-06</i>	<i>Yes</i>

a) AP-42 provides a chromium emission factor for natural gas fired external combustion, but does not include guidance for partitioning emissions between the carcinogenic chromium VI (hexavalent chromium) and the chromium III (trivalent chromium). In the EPA's Study of Hazardous Air Pollutant Emissions from Electric Utility Steam Generating Units - Final Report to Congress (EPA-453/R-98-004a), chromium emissions from natural gas-fired units are not included. However, data on speciation of chromium were available from 11 coal- and oil-fired test sites. From these limited data, EPA estimated that the average chromium VI from the coal-fired utilities was 11 percent, and the average from oil-fired utilities was 18 percent. We have conservatively assumed 18 percent of the chromium emissions are chromium VI.

MEMORANDUM

TO: Harbi Elshafei, Air Quality Scientist, State Office of Technical Services

FROM: Kevin Schilling, Air Quality Scientist, State Office of Technical Services 

SUBJECT: Modeling Review for the Tier II Operating Permit
JR Simplot, Inc., Heyburn, Idaho

DATE: May 3, 2002

1. SUMMARY

J.R. Simplot (JRS) submitted a facility-wide Tier II operating permit (OP) application to resolve regulatory compliance issues at their Heyburn, Idaho facility. Facility-wide modeling was submitted with the Tier II OP application to demonstrate that emissions from the facility would not cause or significantly contribute to a violation of an ambient air quality standard, as required by IDAPA 58.01.01.403.02.

The Department of Environmental Quality (DEQ) has reviewed the analyses and supporting materials submitted, and has verified that operation of the JRS facility as specified in the Tier II OP application will satisfy the requirements of IDAPA 58.01.01.403.02. Review of ambient air impacts of Toxic Air Pollutant (TAP) emissions indicated that emissions would not unreasonably impact human health, as required by IDAPA 58.01.01.161 and DEQ Tier II OP policy.

2. DISCUSSION

2.1 Introduction and Regulatory Requirements for Modeling

On February 12, 2001, DEQ received a Tier II OP application from JRS for their Heyburn, Idaho facility. The purpose of the Tier II OP is to resolve regulatory compliance issues at their facility. DEQ determined the Tier II application complete on October 17, 2001. On December 17, 2001, JRS submitted facility-wide atmospheric dispersion modeling. J.R. Simplot submitted an updated Tier II OP application on March 15, 2002, and on April 5, 2002, the updated application was determined complete.

IDAPA 58.01.01.403 requires that no Tier II OP be granted unless the applicant demonstrates to the satisfaction of DEQ that emissions from the facility "would not cause or significantly contribute to a violation of any ambient air quality standard." Atmospheric dispersion modeling was performed by the applicant to fulfill these requirements.

2.2 Applicable Air Quality Impact Limits and Required Analyses

The JRS facility is located in Minidoka and Cassia Counties. These counties are designated as an attainment or unclassifiable area for all criteria pollutants, including particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers (PM₁₀), carbon monoxide (CO), sulfur dioxide (SO₂), nitrogen dioxide (NO₂), and lead (Pb). If estimated maximum ambient air impacts from the facility's emissions exceed the "significant contribution" levels of IDAPA 58.01.01.006.93, then DEQ modeling guidance requires a full impact analysis. A full impact analysis requires adding ambient impacts from all facility-wide emissions to a DEQ approved background concentration value that is appropriate for each criteria pollutant at the facility location. The resulting maximum ambient air concentration is then compared to the National Ambient Air Quality Standards (NAAQS) listed in Table 1. Table 1 also specifies the modeled value that must be used for comparison to the NAAQS.

IDAPA 58.01.01.161 requires that "[a]ny contaminant which is by its nature toxic to human or animal life or vegetation shall not be emitted in such quantities or concentrations as to alone, or in

combination with other contaminants, injure or unreasonably affect human or animal life or vegetation." To demonstrate compliance with this requirement, an inventory of all TAP emissions at the facility was performed. IDAPA 58.01.01.585 and 586 provide a list of compounds that are considered TAPs. The list also provides screening emission levels and acceptable ambient concentrations that are used for evaluating proposed new sources. The following is a description of DEQ's method for evaluating compliance with IDAPA 58.01.01.161 with regard to this facility-wide Tier II OP application:

- 1) Inventory all TAP emissions at the facility. The pound per hour value associated with maximum 24-hour averaged emissions is used for non-carcinogenic TAPs listed in IDAPA 58.01.01.585, and the pound per hour value associated with maximum annual averaged emissions is used for carcinogenic TAPs listed in IDAPA 58.01.01.586.
- 2) Compare facility-wide TAP emissions with screening emission levels provided in IDAPA 58.01.01.585 and 586. If emissions are less than screening levels, then no further analyses are required.
- 3) Model non-carcinogenic TAPs having emissions that exceed the screening levels to evaluate the maximum 24-hour impact to ambient air. If maximum impacts are less than the applicable acceptable ambient concentration (AAC), then no further analyses are required.
- 4) Model carcinogenic TAPs having emissions that exceed the screening levels to evaluate the maximum annual impact to ambient air. The individual cancer risk associated with the maximum long-term modeled concentration will be calculated from the Unit Risk Factor (URF) given in IDAPA 58.01.01.586 for each carcinogenic TAP emission that exceeds the screening level. Impacts are considered acceptable if the maximum cumulative risk (calculated by summing the risk from all modeled carcinogenic TAPs) is less than 1.0 E-5 (1 in 100,000).

Table 1. Applicable Regulatory Limits

Pollutant	Averaging Period	Regulatory Limit ^a ($\mu\text{g}/\text{m}^3$) ^b	Modeled Value Used ^c
Nitrogen dioxide (NO_2)	Annual	100 ^d	1 st highest
Sulfur dioxide (SO_2)	3-hour	1,300 ^f	2 nd highest
	24-hour	365 ^f	2 nd highest
	Annual	80 ^e	1 st highest
Carbon monoxide (CO)	1-hour	40,000 ^f	2 nd highest
	8-hour	10,000 ^f	2 nd highest
PM ₁₀ ^e	24-hour	150 ^f	6 th highest
	Annual	50 ^e	1 st highest

^a IDAPA 58.01.01.577

^b Micrograms per cubic meter

^c When using five years of meteorological data

^d Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers

^e Not to be exceeded

^f Not to be exceeded more than once per year

2.3 Background Concentrations

DEQ provided JRS with appropriate background concentrations for use in the Tier II OP application. Background PM₁₀ concentrations were obtained from monitoring data collected in Rupert, Idaho. Statewide background concentrations were used for all other criteria pollutants. Table 2 lists applicable background concentrations. J.R. Simplot's consultant, MFG, Inc., used an annual PM₁₀ background value of 23.4 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$). Because the 25.1 $\mu\text{g}/\text{m}^3$ value was recorded in year 2000, it is likely that this value was not available at the time MFG conducted the dispersion modeling analyses.

Table 2. Background Concentrations

Pollutant	Averaging Period	Background Concentration ($\mu\text{g}/\text{m}^3$) ^a
Nitrogen dioxide (NO ₂)	Annual	40
Sulfur dioxide (SO ₂)	3-hour	374
	24-hour	120
	Annual	18.3
Carbon monoxide (CO)	1-hour	11,450
	8-hour	5,130
PM ₁₀ ^b	24-hour	100
	Annual	25.1

^a Micrograms per cubic meter

^b Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers

2.4 Modeling Impact Assessment

Ambient impact analyses were performed by MFG using the model ISCST3 - version 00101. A modeling protocol was not submitted to DEQ prior to submittal of the Tier II OP application. Table 3 provides a summary of modeling parameters used.

Table 3. Modeling Parameters

Parameter	Description/Values	Documentation/Additional Description
Model	ISCST3	Version 00101
Meteorological Data	Burley airport (1960-1964)	DEQ remodeled using surface data from Pocatello, Idaho, and upper air data from Salt Lake City, Utah. 1987-1991
Model Options	Regulatory default	
Land Use	Rural	
Terrain	7.5 minute	Digital Elevation Model data
Building Downwash	Used BPIP program and building dimensions	See Figure 1 for building, source, and receptor locations
Receptor Grids (See Figure 1)	Eastern boundary along Highway 30	25 meter spacing along fenceline and at a distance 25 meters from fenceline
	Grid 1	100 meter spacing in a 2 km by 2 km network centered on the facility
	Grid 2	250 meter spacing in a 5 km by 6 km network centered on the facility

MFG used meteorological data from the Burley airport in 1960 through 1964 for the dispersion modeling assessment. These data were not previously approved by DEQ for modeling and no discussion of data quality were provided with the application. DEQ remodeled emissions using surface meteorological data for Pocatello, Idaho, and upper air data from Salt Lake City, Utah.

DEQ performed verification modeling, using ISCST3 – Version 02035, to check the results submitted by the applicant. Differences between the two versions of ISCST3 and the different meteorological data did not produce substantially different results.

Table 4 provides a summary of emission rates used in the criteria pollutant modeling analyses and Table 5 provides a summary of emission rates used in the TAP modeling analyses. Compliance with annual air quality standards was conservatively based on using maximum hourly emissions.

MFG did not include emissions from eight natural gas-fired heaters in the dispersion modeling analysis. MFG claimed that emissions from the heaters were insignificant and did not warrant inclusion in the modeling assessment because: 1) they are emitted into the buildings rather than through an emission stack, 2) they only operate during winter months, and 3) emissions are relatively small. DEQ's modeling policy does not include *de minimis* levels below which inclusion in the modeling assessment is not required. IDAPA 58.01.01.222.02 provides a list of sources that are exempt from permitting and demonstrating compliance with ambient air quality standards. Although natural gas-fired fuel burning equipment with a capacity less than 50 million Btus per hour input are listed, the heaters do not meet the definition of fuel burning equipment because they are a direct heating device rather than an indirect heating device.

DEQ revised the modeling to include emissions from the heaters. J.R. Simplot provided emission estimates for the heaters in the Tier II OP application, and indicated that all heaters were located in the processing building. Because the heaters exhaust into the indoor air, the emissions were modeled as a volume source having physical dimensions equal to the processing building. The volume source was modeled using a release height of 4 meters (the midpoint of the building height) and initial dispersion coefficients were based on U.S. Environmental Protection Agency (EPA) modeling guidance (σ_{y0} = horizontal building dimension / 4.3 = 180 m / 4.3 = 42 m; and σ_{z0} = building height / 2.15 = 8.13 m / 2.15 = 3.8 m).

Table 4. Pollutant Emission Rates Used for Criteria Pollutant Modeling

Source (Id Code)	Maximum Hourly Emission Rate ^a (lb/hr) ^b				Hourly Rate use for Annual Modeling ^c (lb/hr)			
Pollutant	PM ₁₀ ^d	SO ₂ ^e	NO _x ^f	CO ^g	PM ₁₀	SO ₂	NO _x	CO
Line 1 Dryer	9.0	0.14	NM ^h	2.0	9.0	0.14	2.4	NM ^h
Line 2 Dryer	8.5	0.13	NM ^h	1.8	8.5	0.13	2.2	NM ^h
Line 4 Dryer	7.9	0.02	NM ^h	0.3	7.9	0.02	0.4	NM ^h
WESP	10.5	NA	NM ^h	NA	10.5	NA	NA	NM ^h
Boiler 2	0.28	0.22	NM ^h	3.1	0.28	0.22	3.7	NM ^h
Boiler 4	0.57	0.45	NM ^h	6.3	0.57	0.45	7.5	NM ^h
Nebraska Boiler	0.60	0.47	NM ^h	6.6	0.60	0.47	7.8	NM ^h
Grain Handling Baghouse	0.15	NA	NM ^h	NA	0.15	NA	NA	NM ^h
Biogas Flare	0.28	10.4	NM ^h	13.9	0.28	10.4	10.4	NM ^h
Heaters ^g	0.47	0.036	NM ^h	5.17	0.47	0.036	6.16	NM ^h

^a Emission rate used for 24-, 8-, 3-, and 1-hour averaging periods

^b Pounds per hour

^c Emission rate used for annual averaging period

^d Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers

^e Sulfur dioxide

^f Oxides of nitrogen

^g Carbon monoxide

^h Not modeled because there is no applicable standard for the specified averaging time

^g Combined emissions from eight heaters

Table 5. Pollutant Emission Rates Used for TAP Modeling

Source (Id Code)	Hourly Rate Used for Modeling (lb/hr) ^a					
Pollutant	Formalde- hyde ^b	Arsenic ^b	Cad- mium ^b	Chrom- ium(6+) ^b	Nickel ^b	PAHs ^{b,c}
Line 1 Dryer	1.77E-03	4.72E-06	2.60E-05	5.95E-06	4.96E-05	2.69E-07
Line 2 Dryer	1.62E-03	4.32E-06	2.37E-05	5.44E-06	4.53E-05	2.46E-07
Line 4 Dryer	2.75E-04	7.33E-07	4.03E-06	9.21E-07	7.70E-06	4.18E-08
WESP	NA	NA	NA	NA	NA	NA
Boiler 2	2.78E-03	7.41E-06	4.08E-05	9.37E-06	7.79E-05	4.22E-07
Boiler 4	5.64E-03	1.50E-05	8.25E-05	1.90E-05	1.58E-04	8.57E-07
Nebraska Boiler	5.88E-03	1.57E-05	8.65E-05	1.98E-05	1.65E-04	8.97E-07
Grain Handling Baghouse	NA	NA	NA	NA	NA	NA
Biogas Flare	NA	NA	NA	NA	NA	NA
Heaters	NA	NA	NA	NA	NA	NA

^a Pounds per hour^b Carcinogen, emission rate used for modeling the maximum annual average^c Polyaromatic hydrocarbons

Table 6 lists the emission release parameters used in the dispersion modeling analyses and Figure 1 shows building and emission point locations. All emissions are released to the atmosphere through stacks except for the biogas flare and the heaters. The heaters were modeled as a volume source, as previously described. The biogas flare was modeled as a point source, with release parameters calculated on the basis of a method described in the modeling guidance document, *Screening Procedures for Estimating the Air Quality Impact of Stationary Sources* (EPA-450/4-88-010). This method assumes an exit velocity of 20 meters per second (m/sec) and an exit gas temperature of 1,273 K. The 37.5 million Btu per hour (MMBtu/hr) heat input to the flare was also used with the actual flare height to calculate an adjusted stack height.

Table 6. Emission and Stack Parameters

Source / Location	Source Type	Stack Height (m) ^a	Stack Diameter (m)	Stack Gas Temp. (K) ^b	Stack Gas Flow Velocity (m/sec) ^c
Line 1 Dryer	Point	18.3	1.823	329	7.72
Line 2 Dryer	Point	18.3	1.518	321	8.88
Line 4 Dryer	Point	18.3	1.366	328	10.5
WESP	Point	19.4	1.829	330	12.3
Boiler 2	Point	8.8	0.960	525	9.80
Boiler 4	Point	11.3	1.372	450	8.
Nebraska Boiler	Point	11.3	1.372	450	11.
Grain Handling Baghouse	Point	2.66	1.074	282	48.3
Biogas Flare	Point	11.4	0.254	1273	20.
Heaters	Volume	NA	NA	NA	NA

^a Meters^b Kelvin^c Meters per second

A significant impact analysis was initially performed to determine if emissions resulting from operation of the facility would "significantly contribute" to pollutant concentrations in ambient air. A full impact analysis was then performed for those pollutants emitted from the facility that were estimated to have an ambient impact exceeding "significant contribution" levels. The full impact analysis involved adding the dispersion modeling results to background concentrations.

3. MODELING RESULTS:

Modeled ambient air impact results from the significant impact analysis are provided in Table 7. Table 8 provides results from the full impact analysis. Because the impact from facility emissions exceeded significant contribution levels for annual NO₂, annual PM₁₀, 24-hour PM₁₀, 24-hour SO₂, and annual SO₂, a full impact analysis was performed for those pollutants and averaging times.

Nitrogen dioxide concentrations were conservatively estimated by assuming 100% of NO_x is NO₂. Results of the full impact analysis are presented in Table 8 and indicate that operation of the facility as described in the Tier II OP application will not cause or significantly contribute to a violation of a NAAQS. Modeled PM₁₀ impacts of 137 µg/m³ (including background) are approaching the 24-hour NAAQS of 150 µg/m³. However, this concentration level is confined to a relatively small area along the facility's northeastern boundary, as shown in Figure 2. The maximum modeled annual NO_x concentrations are shown in Figure 3.

Screening emission levels for carcinogenic TAPs were exceeded for arsenic (As), cadmium (Cd), chromium 6+(Cr6+), formaldehyde (CH₂O), nickel (Ni), and polyaromatic hydrocarbons (PAHs). Emissions of these pollutants were then modeled to predict the maximum annual averaged impact and the individual cancer risk associated with exposure to the maximum annual averaged concentration. Table 9 summarizes the carcinogenic TAP analysis. DEQ determined that impacts were acceptable because the maximum total individual cancer risk, associated with exposure to maximum concentrations of all carcinogenic TAPs with emissions exceeding the screening emission levels, was below 1.0 E-5 (1 in 100,000).

The TAPs assessment performed for operations at the JRS facility in Heyburn demonstrated compliance with IDAPA 58.01.01.161 to the satisfaction of DEQ.

Table 7. Significant Impact Analysis for Criteria Pollutants

Pollutant	Averaging Period	Ambient Concentration (µg/m ³) ^a	Significant Contribution ^b (µg/m ³)	Full Impact Analysis Required (Y or N)
Nitrogen dioxide (NO ₂)	Annual	47 ^d	1.0	Y
Sulfur dioxide (SO ₂)	3-hour	23 ^e	25	N
	24-hour	13 ^e	5	Y
	Annual	1.9 ^d	1.0	Y
Carbon monoxide (CO)	1-hour	517 ^e	2,000	N
	8-hour	248 ^e	500	N
PM ₁₀ ^c	24-hour	37 ^f	5.0	Y
	Annual	7.2 ^d	1.0	Y

^a Micrograms per cubic meter

^b Significant contribution level as per IDAPA 58.01.01.006.93.

^c Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers

^d First highest modeled value

^e Second highest modeled value

^f Sixth highest modeled value

Table 8. Full Impact Analysis for Criteria Pollutants

Pollutant	Averaging Period	Ambient Conc. ($\mu\text{g}/\text{m}^3$) ^a	Background Conc. ($\mu\text{g}/\text{m}^3$)	Total Ambient Conc. ($\mu\text{g}/\text{m}^3$)	Regulatory Limit ^b ($\mu\text{g}/\text{m}^3$)	Compliant (Y or N)
Nitrogen dioxide (NO ₂)	Annual	47 ^d	40.0	87	100	Y
Sulfur dioxide (SO ₂)	24-hour	13 ^e	374	387	1,300	Y
	Annual	1.9 ^e	18.3	20.2	365	Y
PM ₁₀ ^c	24-hour	37 ^f	100	137	150	Y
	Annual	7.2 ^d	25.1	32.3	50	Y

^a Micrograms per cubic meter

^b IDAPA 58.01.01.577

^c Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers

^d First highest modeled value

^e Second highest modeled value

^f Sixth highest modeled value

Table 9. Carcinogenic TAP Modeling Analysis

Carcinogenic TAP ^a	Maximum Modeled Annual Conc. ($\mu\text{g}/\text{m}^3$) ^b	Unit Risk Factor (cancer risk / $\mu\text{g}/\text{m}^3$ - person) ^c	Estimated Risk (cancer risk / person)
Arsenic (As)	3 E-5	4.3 E-3	1.3 E-7
Cadmium (Cd)	2.7 E-4	1.8 E-3	4.9 E-7
Chromium (6+)	6.0 E-5	1.2 E-2	7.2 E-7
Formaldehyde (CH ₂ O)	1.82 E-2	1.3 E-5	2.4 E-7
Nickel (Ni)	5.1 E-4	2.4 E-4	1.2 E-7
PAHs	<1.0 E-5	3.3 E-3	3.3 E-8
Total Risk			1.73 E-6

^a Toxic air pollutants

^b micrograms per cubic meter

^c personal cancer risk per microgram per cubic meter

Electronic copies of the modeling analysis are saved on disk. Table 10 provides a summary of the files used in the modeling analysis. Harbi Elshafei has reviewed this modeling memo to ensure consistency with the permit and technical memorandum.

Table 10. Dispersion Modeling Files

Type of File	Description	File Name
Met Data	1987-1991 consistent with DEQ data	Poc87.asc; Poc88.asc; Poc89.asc; Poc90.asc; Poc91.asc;
BEEST Input Files	PM ₁₀ 24-hour; SO ₂ 24-hour and 3-hour; CO 8-hour and 1-hour	HeyburnHeater.BST (includes emissions from heaters)
	annual NO _x , SO ₂ , PM ₁₀ for each of 5 years*	HeyburnHeaterYY.BST (YY = year 87 – 91)
Each BST file has the following type of files associated with it:		
	Input file for BPIP program	.PIP
	BPIP output file	.TAB
	Concise BPIP output file	.SUM
	BEE-Line file containing direction specific building dimensions	.SO
	ISCST3 input file	.DTA
	ISCST3 output list file	.LST
	User summary output file	.USF
	Master graphics output file	.GRF
Some modeling files have the following type of graphics files associated with them:		
	Surfer data file	.DAT
	Surfer boundary file	.BLN
	Surfer post file containing source locations	.TXT
	Surfer plot file	.SRF

* Also includes arsenic, cadmium, chromium 6+, formaldehyde, nickel, and PAHs.

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\\Technical Services\\Modeling\\Schilling\\Simplot Heyburn\\Modeling Tech Memo.doc

Figure 1 - Receptor Grid for JRS Heyburn Facility

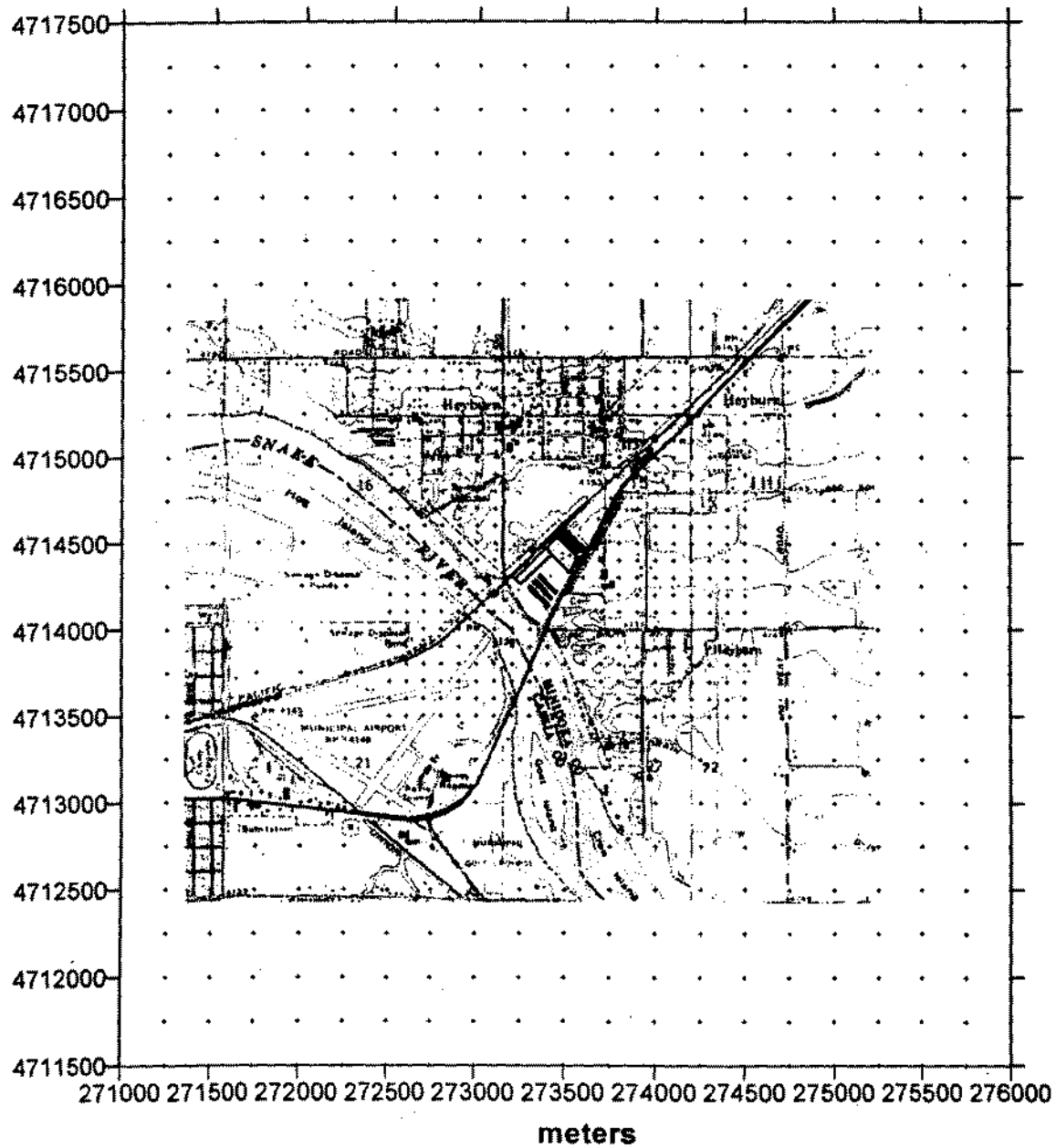


Figure 2 - JR Simplot Heyburn - Tier II OP Ambient Assessment

6th Highest 24-Hour Averaged PM-10 Concentrations (ug/m3)

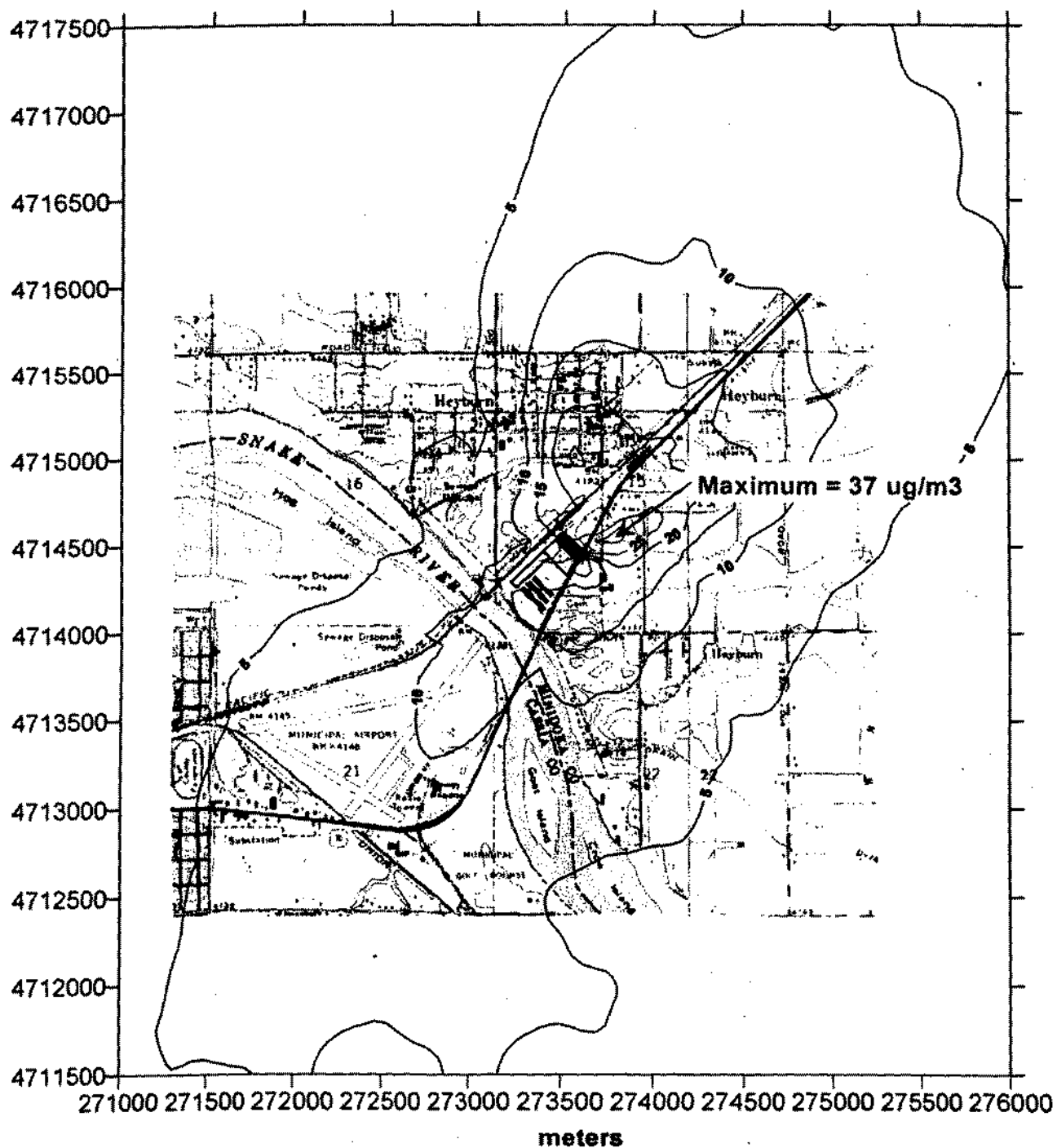
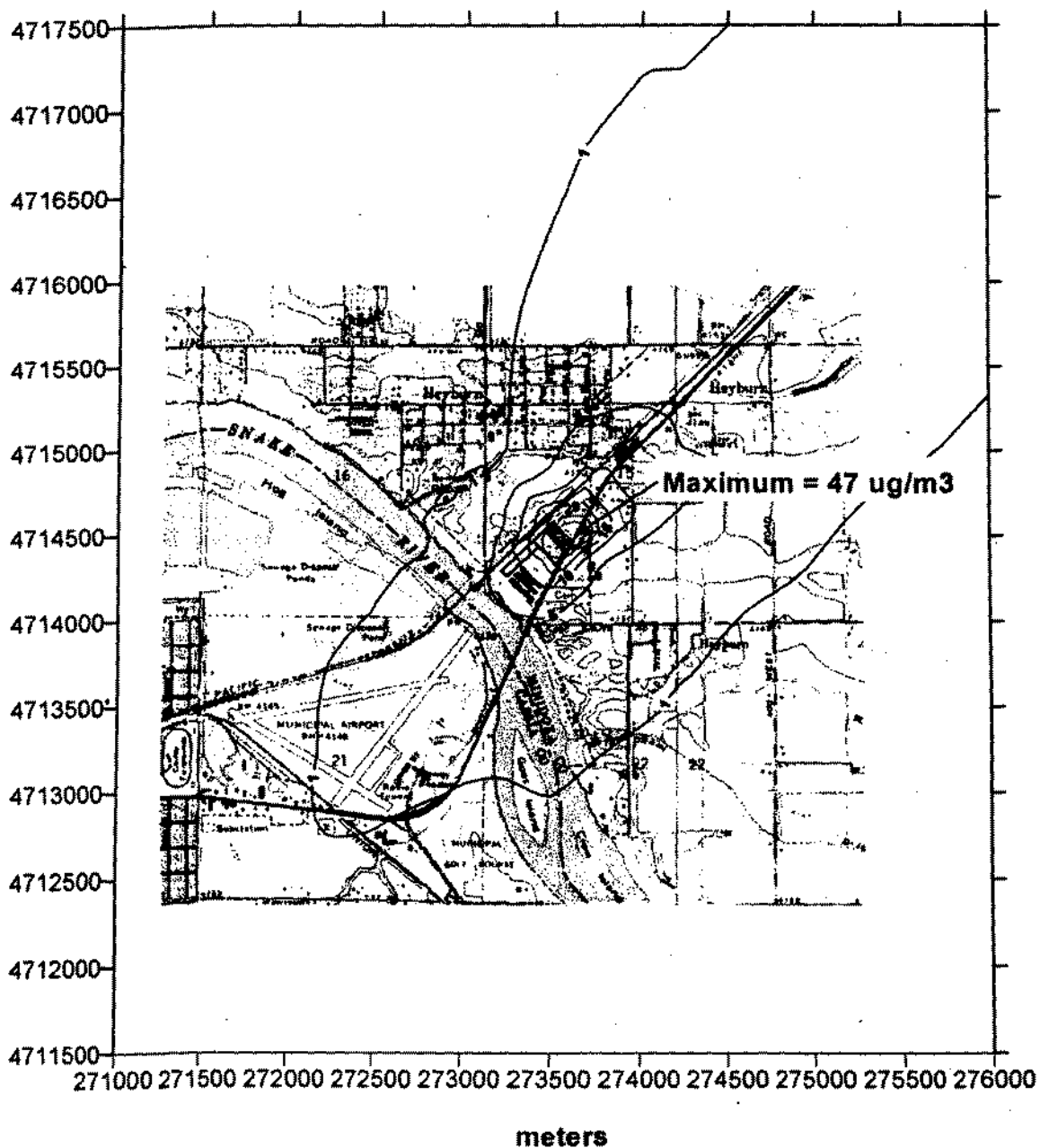


Figure 3 - JR Simplot Heyburn - Tier II OP Ambient Assessment

Highest Annual Averaged NO_x Concentrations (ug/m³)



APPENDIX B

J. R. Simplot, Heyburn

Response to Public Comments

**Response to Public Comments
Submitted During the Public Comment Period
for the J.R. Simplot, Heyburn Tier I Operating Permit
AIRS Facility No. 067-00017**

As required by IDAPA 58.01.01.404 and 364 of the *Rules for the Control of Air Pollution in Idaho (Rules)*, the Idaho Department of Environmental Quality (Department) provided for public notice and comment, including a public hearing, on the proposed Tier II and draft Tier I operating permits for the J.R. Simplot, Heyburn facility. Public comment packages, which included the application materials, the two permits, and associated technical memoranda, were made available for public review at the Department's Twin Falls Regional Office, the Twin Falls Public Library, and the Department's state office in Boise. The public comment period for the Tier I operating permit was provided from July 25, 2002, through August 28, 2002. A public hearing for that permit was held on August 27, 2002 in the Council Chambers of Rupert City Hall. The public comment period for the Tier II operating permit was provided from August 1, 2002, through August 30, 2002.

J.R. Simplot Company (JRS) requested that the Department issue the Tier II operating permit prior to issuing the Tier I operating permit. It is the Department's intent to carry the changes that result from comments on the proposed Tier II operating permit to the Tier I permit.

The only party that provided comments during the public comment period was the J.R. Simplot, Heyburn facility. This document provides the Department's responses to the comments submitted. Each comment is listed below with the Department's response immediately following.

Comments Submitted on August 28, 2002

Comment No. 1.

This permit is being issued concurrently with a Tier II operating permit for the same facility. Comments on the Tier II draft permit are due on August 30, 2002. It is essential that the terms of the Tier I and Tier II permits are consistent. The Tier II permit was drafted to bring several consent orders and permits to construct together in a single document that would then be incorporated into the Tier I operating permit. We understood that it was the intent of the Department to issue the two draft permits at the same time, but the publication of the Tier II permit draft was slightly later than that of the Tier I draft. Simplot will be submitting comments on the Tier II permit on or before August 30. It is our request that if the Department makes changes to the Tier II permit as a result of comments, that it incorporate those same changes into the Tier I permit. Because those comments are more appropriately addressed toward the Tier II draft, we have not included them here.

We have only two comments with regard to the Tier I draft under consideration in this docket. Specifically:

Condition 7.3 limits the quantity of material that may be processed by the material handling system at the ethanol plant, and condition 7.4 requires monitoring and record-keeping to demonstrate compliance with the throughput limit. Contrary to the citation in the Tier I permit, there is no corresponding condition in the Tier II permit. We don't believe a throughput limit is necessary, given that emissions are controlled with a baghouse whose operation is monitored with opacity observations and pressure drop.

Thank you for your consideration of these comments and the comments that will be submitted on the Simplot Tier II permit draft (Docket No. 10AP-0245). Please contact me at 384-8317 if you have any questions.

Response to Comment No. 1

The Tier II operating permit does not contain conditions corresponding to Permit Conditions 7.3 and 7.4 in the Tier I operating permit. Permit Conditions 7.3 and 7.4 have been removed from the Tier I operating permit. As explained below, the Tier II operating permit specifies that process emissions must be controlled. As long as process emissions are controlled as specified in the Tier II operating permit, throughput limits, monitoring, and recordkeeping are not necessary.

The maximum throughput to the hammer mill of the material handling system is 16,800 pounds per hour (lbs/hr). If this is the maximum amount, it cannot be exceeded. The underlying requirement for the throughput limit is process weight (IDAPA 58.01.01.701). The process weight regulation establishes the allowable particulate matter emissions based on weight of process materials, including water. The process weight particulate matter limitations represent uncontrolled emissions. A baghouse with a control efficiency 99% is used to control particulate matter emissions from the hammer mill of the material handling system. Because the process emissions are controlled, the emissions to the atmosphere will not exceed the allowable process weight particulate matter limitation so long as the control equipment is operated according to manufacturer and operations and maintenance (O&M) manual specifications. The following two calculations provide clarification. The applicable process weight equation is found in IDAPA 58.01.01.701.01, and is $E = 1.10(PW)^{0.25}$. In this equation E is the allowable particulate matter emissions from the entire source expressed as pounds per hour, and PW is the process weight, which is 16,800 lbs/hr.

$$E = 1.10(16,800)^{0.25}$$

$$E = 12.52 \text{ lbs/hr (uncontrolled emissions)}$$

$$(12.52 \text{ lbs/hr}) \times (1 - 0.99) = 0.125 \text{ lbs/hr (controlled emissions)}$$

As can be seen, so long as the process emissions are controlled, they can not exceed the process weight limitations. Assurance of compliance with the process weight limitations (IDAPA 58.01.01.701) can be reasonably assumed so long as JRS operates the control equipment according to manufacturer and O&M manual specifications. Therefore, the compliance method is baghouse operation and maintenance, and not throughput limits and throughput monitoring and recordkeeping. For this reason, the throughput limit, Permit Condition 7.3, and the associated monitoring and recordkeeping requirement, Permit Condition 7.4 have been removed from the permit. J.R. Simplot is no longer required to monitor and record throughput as a means to comply with the process weight limitations.

Comment No. 2

Section 10 identifies IEUs. The Heyburn Plant operates 9 heaters, only one of which is rated higher than 10 MMBtu/hr. Except for S-H-H3, heaters S-H-H1 through H-9 should be listed here.

Thank you for your consideration of these comments and the comments that will be submitted on the Simplot Tier II permit draft (Docket No. 10AP-0245). Please contact me at 384-8317 if you have any questions.

Response to Comment No. 2

The Department revised the draft Tier I operating permit to reflect this comment. The Department added to Section 10 of the Tier I operating permit the heaters that are identified as S-H-H2, S-H-H6, and S-H-H9. These heaters are qualified as insignificant activities pursuant to IDAPA 58.01.01.317.01(b).

Comments Submitted on August 29, 2002

These comments are for the Tier II operating permit but will be used for the Tier I operating permit as well.

Comment No. 3

The J.R. Simplot Company (Simplot) has reviewed the proposed Tier II permit for the Heyburn facility. Simplot is submitting two sets of comments on this proposed permit. This set of comments focuses on conditions in the proposed permit not necessarily specific to the Heyburn Plant.

Condition 2.9

Condition 2.9 repeats the requirements found in IDAPA 58.01.01.130-136 (Excess Emission). This portion of the proposed permit needs to be changed to more accurately reflect what is required of sources in regard to excess emissions and what are the discretionary actions that a source may take. The entire 2.9 section should be replaced with the following:

2.9 The rules governing the criteria for which enforcement is taken for excess emissions is found in IDAPA 58.01.01.130-136.

2.9.1 Unless specified elsewhere in this permit, the permittee of a facility or emissions unit generating excess emissions shall comply with Sections 131, 132, 133.01, 134.01, 134.02, 134.03, 135 and 136 as applicable.

[IDAPA 58.01.01.131.01]

2.9.2 If the permittee anticipates requesting consideration under Subsection 131.02, then the permittee shall also comply with the applicable provisions of 133.01, 133.03, 134.04 and 134.05.

[IDAPA 58.01.01.131.01]

This change in the Tier II permit is needed because the language in the proposed permit is confusing as to what is actually required by a source and what is not. A source has the discretion as to whether or not to develop the excess emission procedures if the source wants consideration under 131.02. The rules do not require that the source develop the procedures found in 133.02 and 134.04.

Response to Comment No. 3

The Department did not revise the draft Tier I operating permit to reflect this comment. The excess emissions in Permit Condition 2.9 of the operating permit is taken verbatim from IDAPA 58.01.01.130-136 and is standard language that is used by the Department in all Tier II and Tier I operating permits.

Comment No. 4

Condition 4.8

Condition 4.8 needs several changes to reflect what the rules require. The regulatory citation for 4.8 is given as subsection 405. However, subsection 405 does not address Operation and Maintenance Plans, nor does it specify what should go into an Operation and Maintenance Manual, the frequency of inspections and what the key parameters should be for monitoring the performance of a wet electrostatic precipitator. Subsection 405 just specifies reasonable conditions as it relates to emission testing (number of ports, access to ports, instrumentation to record emissions data, and other sampling information), performance testing, permit terms and single Tier II operating permits. The proper regulatory citation for operation and maintenance is found in Subsection 134.01.a. This subsection requires that a source:

"Implement routine preventative maintenance and operating procedures consistent with good pollution control practices for minimizing upsets and breakdowns or events requiring implementation of safety measures, and"

Consistent with the language that is in Subsection 134.01.a., condition 4.8 should be revised as follows:

Within 60 days of issuance of this permit, the permittee shall have developed an O&M manual for the WESP in accordance with manufacturer specifications and common industry practices. The O&M manual shall address the operation and maintenance of the WESP. A deviation from any operational procedure in the O&M manual shall not be considered an emission limit violation unless evidenced by a compliance test. The O&M manual shall be maintained onsite at all times and shall be made available to Department representatives upon request.

[IDAPA 58.01.01.134.01.a.]

Response to Comment No. 4

The Department did not revise the draft Tier I operating permit to reflect this comment. The intent of IDAPA 58.01.01.405 (Conditions for Tier II Operating Permits) is to allow the Department to include in Tier II operating permits conditions that the Department finds necessary for the operator to operate the control equipment as required in the manufacturer and O&M manual specifications. Language similar to Permit Condition 4.8 in the Tier II operating permit is already used in the Tier I operating permit pursuant to IDAPA 58.01.01.322.06 and .07. The Tier I operating permit language which has to do with the O&M manual is found in Permit Condition 4.1.

Please refer to response to Comment No. 6 for further explanation as to why the Department did not add the requested wording of "common industry practices" to Permit Condition 4.8.

Comment No. 5

Condition 4.9

Condition 4.9 is labeled "monitoring equipment" and this section discusses the instrumentation associated with the operation of the WESP. As such, this instrumentation is not "emission monitoring" equipment, rather it provides information on the operation of the WESP. Condition 4.9 should be described as control equipment recordkeeping.

Condition 4.9.1 requires hourly recording of the secondary voltage at each T-R set for each field of the WESP. The regulatory citation given as requiring this is IDAPA 58.01.01.134.01.a. Also, it is not clear what the value is of hourly data. A daily recording of such information would provide more than sufficient information to DEQ on how the control equipment is being operated. Condition 4.9.1 should be changed to:

The permittee shall record daily the secondary voltage at each T-R set for each field of the WESP.

[IDAPA 58.01.01.134.01.a.]

Condition 4.9.2 also needs changed as the same issues exist as in 4.9.1. Condition 4.9.2 should be changed to:

The permittee shall record daily the temperature differential between the inlet and outlet of the quench chamber of the WESP.

[IDAPA 58.01.01.134.01.a.]

Response to Comment No. 5

To eliminate confusion in Permit Condition 4.9 of the proposed Tier II operating permit, the Department removed permit Condition 4.9 (Monitoring Equipment) from the Monitoring and Recordkeeping Requirements section to the Operating Requirements section of the permit. A new permit condition (4.6 section WESP Operating Parameters) was added to the Operating Requirements section of the permit. The WESP operating parameters will have the following conditions, which already existed in the proposed Tier II operating permit:

- 4.6.1 Within 60 days of issuance of this permit, the permittee shall install, calibrate, maintain, and operate equipment to monitor and record the secondary voltage at each T-R set for each field of the WESP, in accordance with manufacturer specifications.
- 4.6.2 The permittee shall install, calibrate, maintain, and operate equipment to measure the temperature differential between the inlet and outlet of the quench chamber of the WESP, in accordance with manufacturer specifications.

A new permit condition (4.10 Recording the WESP Operating Parameters) was added to the Monitoring and Recordkeeping section of the permit. Under Permit Condition 4.10, the following recording requirements were added:

- 4.9.1 The permittee shall record daily the secondary voltage at each T-R set for each field of the WESP.
- 4.9.2 The permittee shall record daily the temperature differential between the inlet and outlet of the quench chamber of the WESP.

In the proposed Tier II operating requirements, the hourly recording requirement was changed to daily. The Department concluded that the daily recording of the secondary voltage at each T-R set for each field of the WESP and the temperature differential between the inlet and outlet of the WESP are easier to track and will provide enough information on how the WESP is being operated.

Please see the response to permit comment No. 4 for the reason why IDAPA 58.01.01.405 is cited in this permit condition of the Tier II operating permit.

All changes to this permit condition were carried over to Tier I operating permit.

Comment No. 6

Condition 7.3

Condition 7.3 describes the O&M Manual requirements for the material handling system baghouse. The same comments given earlier for Condition 4.8 are applicable here. Condition 7.3 needs to be changed to:

Within 60 days of issuance of this permit, the permittee shall have developed an O&M manual for the baghouse in accordance with manufacturer specifications and common industry practices. The O&M manual shall address the operation and maintenance of the baghouse. A deviation from any operational procedure in the O&M manual shall not be considered an emission limit violation unless evidenced by a compliance test. The O&M manual shall be maintained onsite at all times and shall be made available to Department representatives upon request.

[IDAPA 58.01.01.134.01.a.]

Response to Comment No. 6

The Department did not revise the proposed Tier II operating permit to reflect this comment. The O&M manual language in your operating permit is a standard language which the Department uses in all operating permits. The "common industry practices" that JRS requested be included in Permit Condition 7.3 of the permit is vague. Unless the JRS specifies what these common industry practices are, the Department will keep Permit Condition 7.3 in the operating permit as is. J.R. Simplot, however, can specify those "common industry practices" in the O&M manual and submit them to the Department for approval.

Comment No. 7

Condition 7.4

Condition 7.4 needs the applicable citation changed to IDAPA 58.01.01.134.01.a. Subsection 405 does not address recordkeeping and monitoring associated with control equipment.

Response to Comments No. 7

The Department did not revise the proposed Tier II operating permit to reflect this comment. Please refer to the response to Comment No. 4 for a full response.

Comment No. 8

Condition 7.5

Condition 7.5 needs the applicable citation changed to IDAPA 58.01.01.134.01.a. Subsection 405 does not address recordkeeping and monitoring associated with control equipment.

Response to Comments No. 8

The Department did not revise the proposed Tier II operating permit to reflect this comment. Please refer to the response to Comment No. 4 for a full response.

Comment No. 9

Condition 8.5

Condition 8.5 should have the regulatory citation changed to IDAPA 58.01.01.134.01.a. Subsection 405 does not address monitoring and operation of control equipment.

Response to Comment No. 9

The Department did not revise the proposed Tier II operating permit to reflect this comment. Please refer to the response to Comment No. 4 for a full response.

Comments No. 10

Condition 8.8

Condition 8.8 describes the O&M Manual requirements for the iron-sponge scrubber system. The same comments given earlier for Condition 4.8 are applicable here. Condition 8.8 needs to be changed to:

Within 60 days of issuance of this permit, the permittee shall have developed an O&M manual for the iron-sponge scrubber system in accordance with manufacturer specifications and common industry practices. The O&M manual shall address the operation and maintenance of the iron-sponge scrubber system. A deviation from any operational procedure in the O&M manual shall not be considered an emission limit violation unless evidenced by a compliance test. The O&M manual shall be maintained onsite at all times and shall be made available to Department representatives upon request.

[IDAPA 58.01.01.134.01.a.]

It is Simplot's intent that the Tier II permit reflect accurately what is required by the Rules for the Control of Air Pollution in Idaho. We would welcome a discussion on any questions that would arise from these comments. I can be contacted at 208.389.7365.

Response to Comment No. 10

The Department did not revise the proposed Tier II operating permit to reflect this comment. Please refer to the response to comments Nos. 4 and 6 for a full response.

Comments Submitted on August 30, 2002

These comments are for the Tier II operating permit but will be used for the Tier I OP as well.

Comment No. 11

The J.R. Simplot Company (Simplot) has reviewed the proposed Tier II permit for the Heyburn facility and is submitting two sets of comments on this proposed permit. This set of comments addresses facility-specific condition in the proposed permit. Simplot appreciates the work DEQ has done working with Simplot representatives in long hours of discussion and negotiation to craft a Tier II permit that reflects accurately what is required by the Rules for the Control of Air Pollution in Idaho and is workable for facility management. We are submitting these comments in the spirit of clarification and accuracy in the specifics of the permit requirements.

Condition 2.17

Condition 2.17 needs to be modified to reflect the approved methods and limitations of the methods. EPA has already approved various methods that can be used at the sources Heyburn. Table 2.2 should reflect that those methods are already approved for use. Specifically:

PM₁₀ Method 201.a will not work for a wet plume; the appropriate method for a wet plume is RM5/202.*

NO_x EPA Method 7, 7A, 7B, 7C or 7D.*

SO₂ EPA Method 6, 6A, 6B, or 6C.*

* or Department approved alternative in accordance with IDAPA 58.01.01.157.

The requirements for NO_x and SO₂ are extraneous because testing for those compounds is not required under this permit. If they are to remain they should be changed as noted above.

Response to Comment No. 11

The Department did not revise the proposed Tier II operating permit to reflect this comment. The test methods that are shown in Table 2.2 of the operating permit are the methods that the permittee shall use to measure the pollutant emissions. However, "or Department-approved alternative in accordance with IDAPA 58.01.01.157," is included in Table 2.2 as an option for all test methods listed. It should be noted that IDAPA 58.01.01.157.01 states that

"a. prior to conducting any emission test, owners, or operators are strongly encouraged to submit to the Department in writing, at least 30 days in advance, the following approval:

- i. The type of method to be used;
- ii. Any extenuating or unusual circumstances regarding the proposed test; and
- iii. The proposed schedule for conducting and reporting the test.

b. without prior Department approval, any alternative testing is conducted solely at the owner's or operator's risk. If the owner or operator fails to obtain prior written approval by the department for any testing deviations, the Department may determine the test does not satisfy the testing requirements."

Therefore, the permittee can request Department approval of a test method in advance.

Comment No. 12

Condition 2.9.5

Condition 2.9.5 requires an excess emissions record *book* for each emissions unit. If this condition is to remain in the permit (please comments submitted by Alan Prouty on behalf of Simplot), it seems that an emissions *file* would be more appropriate term.

Response to Comment No. 12

The Department did not revise the proposed Tier II operating permit to reflect this comment. Permit Condition 2.9.5 in Tier II operating permit cites IDAPA 58.01.01.136.03.a, which states that facilities must maintain "an excess emissions record book for each emissions unit or piece of equipment containing copies of all reports that have been submitted to the Department pursuant to IDAPA 58.01.01.135 for the particular emissions unit or equipment." It is clear that IDAPA 58.01.01.136.03.a requires the permittee to have an excess emissions record book and not an emissions file.

Comments No. 13

Condition 3.7.2

Condition 3.7.2: To enhance clarity we suggest the following editorial change:

Current: The performance tests for the line 1, line 2, and line 4 dryer stacks shall be conducted while the dryers are operating at a minimum of 80% of the maximum throughput limit, or worst case normal operations as demonstrated by the permittee of each dryer, measured as finished potato product.

Proposed: The performance test for each dryer shall be conducted while that dryer is at worst case normal operation (as documented by the permittee) or when it is operating at a minimum of 80% of that dryer's maximum throughput limit (measured as finished potato product).

Response to Comment No. 13

To further clarify the meaning of Permit Condition 3.7.2, the Department slightly changed the wording to read as follows:

"The performance tests for the line 1, line 2, and line 4 dryer stacks shall be conducted while the dryers are operating at worst case normal operating conditions (as documented by the permittee) or while they are operating at a minimum of 80% of their maximum throughput limit (measured as finished potato product)."

All changes to this permit condition were carried over to Tier I operating permit.

Comment No. 14

Condition 3.7.3

Condition 3.7.3 requires annual source testing of the dryers if the PM₁₀ measured during a source test exceeds 90% of the permit limit. This should be revised or clarified to require another source test within one year. The way it's written now could be construed to mean we are required to do annual source testing forever, but we believe the intent is only to require another source test within one year. This same revision should be made to condition 4.7.5 (governing an analogous WESP source test).

Response to Comment No. 14

The Department did not revise the proposed Tier II operating permit to reflect this comment. The intent of Permit Condition 3.7.3 is not, as you stated in your comment, to require JRS to perform annual source testing forever. The performance testing hierarchy in Permit Condition 3.7.3 allows the permittee to do performance testing as exactly it is spelled out in that section of the permit. The performance test hierarchy in Permit Condition 3.7.3 is the Department's standard language that is used in all Tier I and Tier II operating permits.

The Department also did not revise Permit Condition 4.7.5 (WESP PM_{10} Performance Tests) of the proposed Tier II operating permit for the same reason stated above.

Comment No. 15

Condition 4.7.2

Condition 4.7.2: Analogous to the suggestion for Condition 3.7.2 of the Tier II we suggest the following clarification for Condition 4.7.2:

Current: The performance tests for the WESP stack shall be conducted while the fryers are operating at a minimum of 80% of their maximum throughput limit, or worst case normal operations as demonstrated by the permittee of all fryers, measured as finished potato product.

Proposed: The performance test for the WESP stack shall be conducted while the fryers are at worst case normal operation (as documented by the permittee) or when they are operating at a minimum of 80% of their maximum throughput limit (measured as finished potato product).

Response to Comment No. 15

The Department rewrote Permit Condition 4.7.2 (currently Permit Condition 4.8.2) to read as follows:

"The performance tests for the WESP stack shall be conducted while the fryers are operating at worst case normal operating conditions (as documented by the permittee) or while they are operating at a minimum of 80% of their maximum throughput limit (measured as finished potato product)."

Comments No. 16

Condition 8.4

Condition 8.4 needs a couple of changes. As pointed out in Alan Prouty's letter, Subsection 405 does not address the operation of process or control equipment; thus that is not the appropriate regulatory citation for this requirement. Also, the nature of this process is that "flame-outs" of the pilot light will occur. It is impossible to maintain a pilot light 100% of the time while the digester is operating. Condition 8.4 should be changed to:

The digester flares shall be operated with a pilot flame present during the operation of the digester. In the event of a flame failure, the permittee shall follow a standard operating procedure to reinitiate the pilot flame as soon as practicable.

[IDAPA 58.01.01.131.01.a.]

Thank you for the opportunity to comment on this permit and the Tier I permit that was proposed in the same time frame. Any changes to the Tier II permit should also be reflected in the Tier I permit which incorporates the terms of the Tier II permit along with other applicable requirements. We would welcome a discussion on any questions that would arise from these comments. I can be contacted at 208-384-8317.

Response to Comment No. 16

For your comment regarding the citation of IDAPA 58.01.01.405, please refer to the response to Comment No. 4.

The Department reworded Permit Condition 8.4 to read as follows:

"The ADI-BVF digester flares shall be operated with a pilot flame present during the operation of the digester. In the event of a flame failure, the permittee shall follow a standard operating procedure to reinitiate the pilot flame as expeditiously as practicable."